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**(54) ELECTROSURGICAL SYSTEM, GENERATOR FOR ELECTROSURGERY, AND METHOD FOR CUTTING OR EXCISING TISSUE BY ELECTROSURGERY**

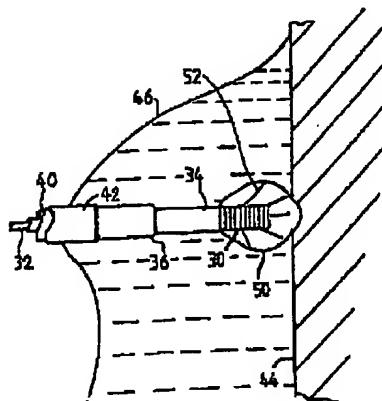
**(57) Abstract:**

**PROBLEM TO BE SOLVED:** To obtain many advantages including improvement of tissue incision and cutting speed, possibility of reducing damage and burning of neighboring tissues and reduction of nervous stimulation by including a circuit which senses thermal electron emission from electrode in a generator which contains a high-frequency energy source supplied to a treatment electrode of an instrument for electrosurgery.

**SOLUTION:** When a sufficient high-frequency voltage is given between electrodes 30 and 36, the liquid 46 is vaporized by liberation of electric power in an electro-conductive liquid 46. At first small bubbles are formed on the active electrode 30 surface, and finally gather to completely surround with vapor pockets 50. The vapor pocket 50 are supported by electric discharge 52 over the active electrode 30 and the vapor-saline interface. Most part of electric power discharge occurs in

the pockets 50 together with heat resultantly generated from the active electrode 30, and the liberated energy quantity is a function of transferred electric power. A tissue 44 is removed by laceration between cells by arc discharge, the laceration being formed by keeping the active electrode 30 near the tissue 44 surface and intercepting the tissue surface by the vapor pockets 50.

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